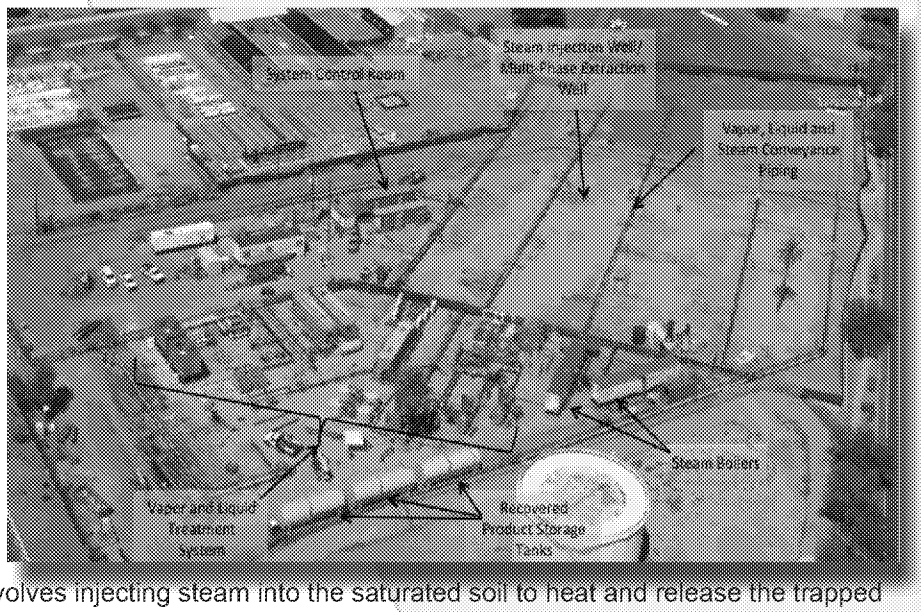
SITE ST012

Site Overview

The former Williams Air Force Base Liquid Fuel Storage Area is now the hub of activity to remove fuels approximately 160 to 245 feet below the surface. Located at S. Sossaman Road and Ulysses Ave., the fuel storage area provided bulk fuel storage and distribution for the former base from 1941 to 1991. Leaks and spills resulted in petroleum contaminants seeping into the soil and groundwater. Although groundwater at the site is not used for drinking or irrigation, the Air Force is taking action to ensure long-term protection of human health and the environment.



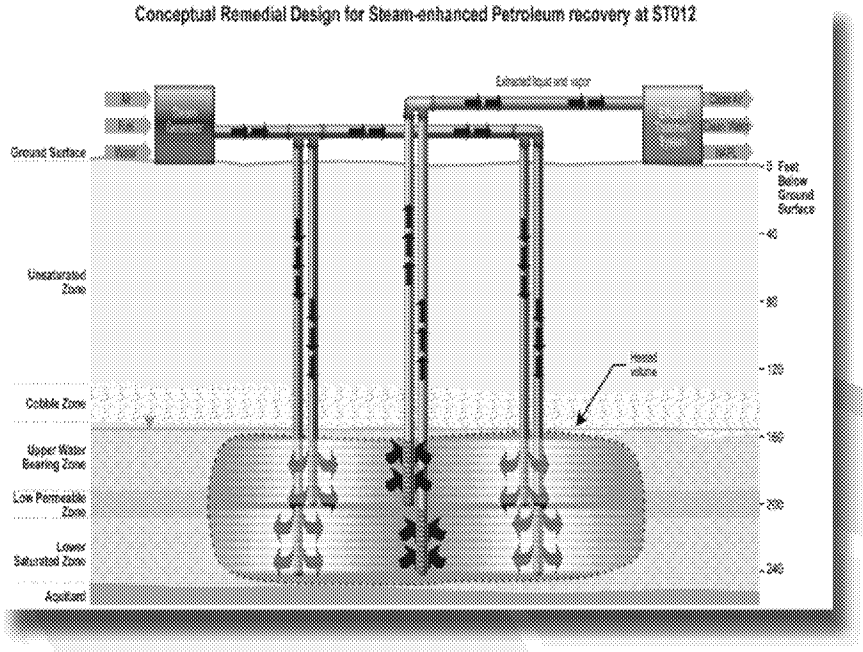
The groundwater cleanup for this site relies on an innovative technology called Steam Enhanced Extraction (SEE). The process involves injecting steam into the saturated soil to heat and release the trapped fuel. The residual fuel, contaminated groundwater, and vapors are then extracted from multi-phase wells for treatment at the surface.

After SEE has achieved its goals, the cleanup will transition to a process called Enhanced Bioremediation. Enhanced bioremediation takes advantage of natural microorganisms that can degrade the residual petroleum compounds.

Remedial Action

- **Signed Record of Decision Amendment (RODA):** Sep 2013
- **Final Remedial Design/Remedial Action(RD/RA) Work Plan:** May 2014
- **All Major Equipment Installed:** Jul 2014
- **Wellfield Piping Complete:** Aug 2014
- **Process Equipment and Piping Complete:** Aug 2014
- **City of Mesa Discharge Permit:** Aug 2014
- **SEE Commissioning:** Sep 2014
- **Steam Heating and Extraction:** Oct 2014-Aug 2015
- **Post Steam Extraction:** Aug 2015-Nov 2015

Conceptual Remedial Design for Steam-Enhanced Petroleum Recovery at ST012



Project Summary

- Target Treatment Zone Soil Volume 410,000 cy
- Area 199,000 square feet
- Estimated Total Days of Operation 422 days
- Days of Operation 154 days
- Days of Operation vs. Estimate 37%
- Estimated Total Energy Usage 11,343,000 kWh
- Total Energy Used 1,249,753 kWh
- Total Steam Injected 79.2 million lbs
- Projected Total Steam Injection 320 million lbs
- Steam Injected vs. Projected 25%
- Mass Removed in Vapor Based on Photoionization Detector (PID) Readings 134,144 lbs
- Mass Removed as NAPL 204,721 lbs
- Total Vapor and Liquid Mass Removal (based on PID readings) 338,865 lbs

STOP NO. 4

ENVIRONMENTAL CLEANUP SITE TOUR

Former Williams Air Force Base — **March 24, 2015**

BASE HISTORY

Since its construction in 1941, the 4,043-acre Williams Air Force Base served as a flight training school. The base closed in 1993 under Base Realignment and Closure (BRAC). While the community has been redeveloping the Williams property since the 1990s, the Air Force has continued to clean up the soil and groundwater from past military operations.

In 1989, the U.S. Environmental Protection Agency (EPA) listed Williams on its National Priorities List. Initially, the Air Force found 82 sites needing some form of environmental cleanup. Today, 67 of those sites are closed, requiring no further cleanup.

The last remaining sites requiring cleanup include the current project at the former fuel storage area, also referred to as Site ST012. Like all other environmental remediation at Williams, this remedy was jointly selected by the Air Force, EPA, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources.

Property transfer at Williams is also nearly complete. Some 3,900 acres have been deeded from the military, with 144 acres remaining to be transfered. Williams is now home to the Phoenix-Mesa Gateway Airport, Arizona State University Polytechnic Campus, Chandler-Gilbert Community College, and numerous other businesses.

15 SITES REMAIN AT THE FORMER WILLIAMS AIR FORCE BASE

Six CERCLA Sites included on tour

- LF004 (includes DP028) – Base Landfill and Sewage Disposal Trenches
- FT002/FT002P – Fire Training Protection Area 2
- SS017 – Old Pesticide/Paint Shop
- ST012 – Liquid Fuels Storage Area

Five CERCLA institutional control sites with restriction limiting property to non-residential use

- SS016 – Electroplating/Chemical Cleaning Shop
- SS019 – Former Skeet Range (also requires cap inspection and maintenance)
- SS020 – Firing Range
- SS021 – Fire-In Buttress
- SS024 – Wastewater Treatment Plant Entomology Shop

One MMRP site (on Parcel N adjacent to Site LF004)

- XU403, Parcel N Debris Area – CWM and MEC Clearance completed in 2014; reports in preparation

Three non-CERCLA petroleum hydrocarbon sites (ADEQ lead)

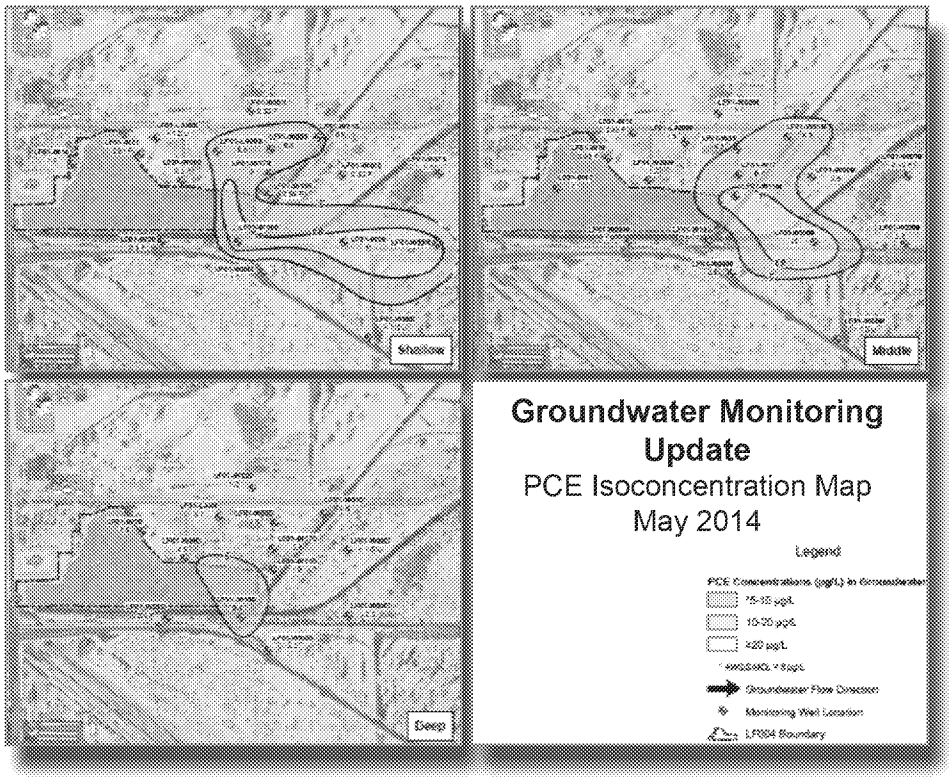
- ST035, former base gas station – Soil vapor extraction operated 2010-2013; groundwater monitoring ongoing; site closure currently being evaluated
- UST 1085-2 – site restriction limiting property to non-residential use
- UST 1013 – site restriction limiting property to non-residential use

SITE LF004

STOP NO. 1

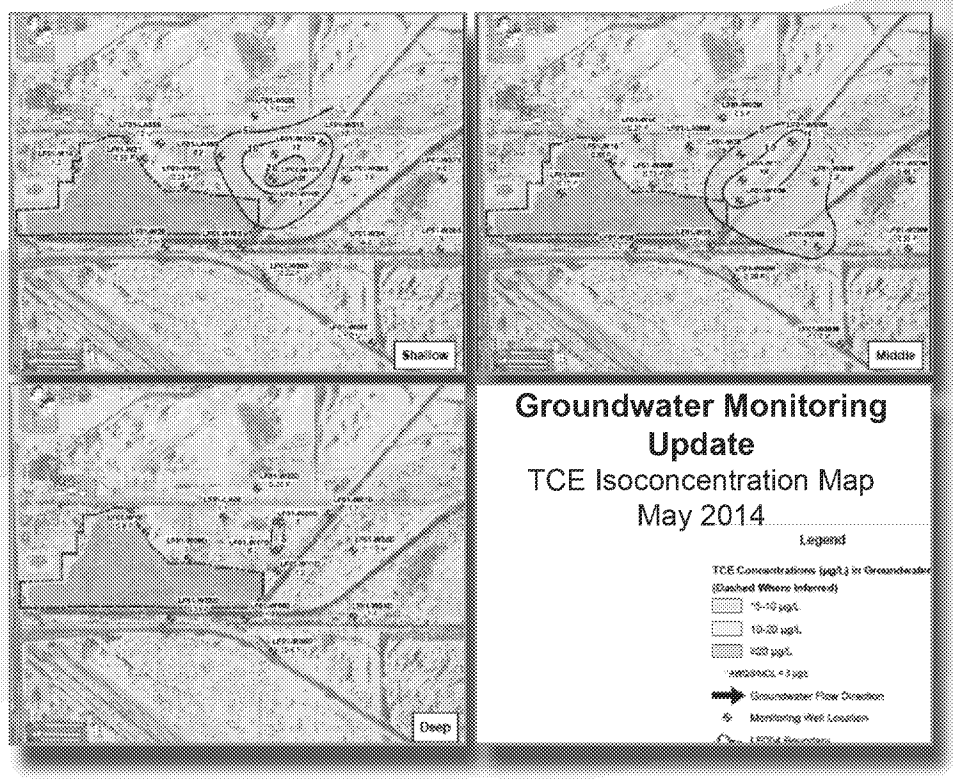
Site Background

- Former solid waste landfill
- Operated from 1941 to 1976
- Closed in 1995 with a permeable soil cap (OU-1 ROD 1994)
- Rising groundwater table
- Ongoing semiannual groundwater monitoring
- COCs
  - Dieldrin & beryllium in surface soil
  - TCE & PCE in groundwater & soil gas



Remedial action progress

- **Final RODA:** May 2014
- **Draft Final RD/RA Work Plan:** Aug 2014
- **Well Drilling/Installation:** Apr - May 2014
- **Baseline Sampling Complete:** May – Jun 2014
- **Equipment Installation:** Jun – Aug 2014
- **System Startup:** Aug – Sep 2014



Operations Summary Thru 15 Feb 2015

- Former AST SVE System - Estimated 50 pounds of TCE and PCE removed
- Southeast Landfill SVE System -Estimated 17 pounds of TCE and PCE removed
- In Well Air Stripping operating effectively, 4 lbs TCE/PCE removed
- Oxidant injections showing effective distribution and impacts on contaminant reduction

SITE FT002

STOP NO. 2

Site Background

» Fire protection training activities (1958-1991)
» Soil COCs: benzene, chloroform, 1,4-dichlorobenzene
» No evidence of groundwater impact
» OU-3 ROD 1996; Soil remedy (bioventing) implemented in 1996-1997

System Description

» One nested SVE well with three screen intervals
» Treatment system: Combination thermal oxidizer and electric catalytic oxidizer

Jun 2014 - Feb 2015

Estimated VOC mass (lbs) removed through 2/13/15

Benzene	34
Toluene	574
Ethylbenzene	160
Xylene	736

SITE SSO17

STOP NO. 3

Site Summary

» Old pesticide/paint shop
» Soil & groundwater COC: Dieldrin
» Removal action for soil completed in 2000
» Ongoing annual groundwater monitoring (August) - 4 wells
» Complete OU-6 ROD in FY2015